



**Minuteman
Repeater
Association**

The Minuteman



Volume 52 Number 1 September 2022

The Minuteman Repeater Association is a non-profit organization providing communications infrastructure and volunteers for community and emergency events.

Membership Meeting ~ Wednesday, 21 September 2022 ~7:30—9:30 pm

Digital Modes Beyond FT8 ~ Leandra MacLennan ~ AF1R

This is a Hybrid meeting: New England SciTech + ZOOM

(Directions to New England SciTech on Page 4)

Members: log into your account on MMRA.ORG to obtain the ZOOM info.

Non-members: send an email to contact@mmra to request the ZOOM info.

Do all your conversations on HF consist of exchanging grid squares and two-digit numbers such as -08, -16, -06, or +03? Have you ever wished you could have a real conversation with the ham in southern France who just sent you a -15?

Yes, it's a thrill to work that new country on FT8. But all they sent you was a grid square and "-18". Technically you've now worked that country, but are you really satisfied with your "QSO"? Have you ever wanted to know more about the person at the other end of your FT8 contact? Maybe the operator is an XYL. What is his or her name? What is he/she using as an antenna? What's his/her life story?

FT8 is great for quick contacts, but there is no opportunity to find out more about the operator at the other end of the QSO. There are many other digital modes where you can have a real, keyboard to keyboard conversation.

Leandra received her novice license in 1974 as a sophomore in high school. She worked her way through General, Advanced and Extra (each time required a visit to the Boston Custom House) by the time I graduated from high school.

She was somewhat active in College (Electrical Engineering was too intense to be able to spend hours operating), and had her first chance to try RTTY (real mechanical RTTY with paper and punched tape) and SSTV at the club station. She was active for a few years after graduation.

She organized the ham radio safety team for ten years in the 1990's for the Auto Hillclimb at the Mount Washington Mountain Auto Road, and organized the ham radio safety team at the Maine Forest Rally for the first three years of the event.

Leandra was inactive from the early 2000's to about 2018, and is now active in contesting, POTA, and the keyboard digital modes.

She is a member of ARRL, YLRL, MMRA, Wellesley Amateur Radio Society, Waltham Amateur Radio Association, PODXS 070 club, and the Feld Hell Club.

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About the Minuteman Repeater Association

MMRA Control Operators Responsibilities

<https://www.mmra.org/MMRACOPolicy-March2019.pdf>

The Minuteman Repeater Association (MMRA) is dedicated to Amateur Radio and public service. The MMRA maintains a large system of repeaters in Eastern Massachusetts.

The MMRA meets each month from September to June. Meeting times, locations, and talk-in frequency vary and are announced in this newsletter and on weekly nets. Meetings are open to all interested parties. Guest speakers and programs of general interest occur in September, November, January, March, and May. The intervening meetings are also open to all members and are for general business.

The Minuteman newsletter is emailed one week before each general interest meeting. Members are encouraged to submit articles: send to the editor at newsletter@mmra.org. The deadline for articles is the last Friday of the month preceding the meeting.

Each Tuesday evening at 8PM the MMRA links most of the repeaters for an open net. The topic is "Technical Information and Other Stuff". Join us!

Membership in the MMRA is open to all radio amateurs. Annual dues are \$25 per individual or \$35 per family. See our website for details.

Contact information is listed on the top of the last page of this newsletter.

No part of this newsletter can be copied or posted elsewhere without prior approval from the club.

MMRA QRM Policy

MMRA members and all other operators are strongly encouraged to report repeater activity that does not abide by Part 97 rules or accepted amateur radio practice to the board of directors at contact@mmra.org or via other means.

The most effective way (and probably the only effective way) to deal with an individual causing QRM is to NOT engage that individual on the air. Please include the time and date of any incident.

Repeater and Frequency Information

Band	XMTR Location	Freq	PL	Call	Linking To:	
					Hub 1	Hub 2
10m	Marlboro East	29.680	131.8	W1MRA	PTL	PTL
Linked to 146.79: 9am-3pm every day						
6m	Marlboro East <i>Remote receive Marlboro West: PL=100</i>	53.810	71.9	W1BRI	PTL	PTL
2m	Brookline	145.160	na	K1MRA	D-Star (REF050C)	
	Belmont	145.430	146.2	KC1CLA	PTL	FTL: DARI
	Mendon	146.610		K1KWP	FTL	PTL
	Quincy	146.670		W1BRI	PTL	PTL
	North Reading	146.715		KC1US	PTL	PTL
	Weston	146.790		N1BE	PTL	PTL
	Boston <i>Remote receive in Brookline Boston: PL = 127.3</i>	146.820		Linked to 29.68: 9am-3pm every day		
	Billerica	147.120		K1BOS	FTL	PTL
	Marlborough	147.270		W1DC	PTL	PTL
				W1MRA	PTL	PTL
1½m	Marlborough	223.940	103.5	W1MRA	PTL	PTL
	Quincy	224.400		N1KUG	PTL	PTL
	Weston	224.700		N1NOM	PTL	PTL
	Burlington	224.880		KC1US	PTL	PTL
70cm	Lowell	442.250	88.5	W1MRA	FTL	PTL: 446.775
	Weston *	442.700	88.5	N1DCH	Network Hub 2 (PTL to Hub 1)	
	North Reading <i>System Fusion</i>	446.775	88.5 Linked 71.9 Local	W1DYJ	FTL [88.5]	PTL [88.5]
	Marlborough	448.225	na	W1MRA	D-Star (REF050C)	
	Hopkinton <i>System Fusion</i>	449.575	88.5 Linked 71.9 Local	W1BRI	FTL [88.5]	PTL [88.5]
	Marlborough *	449.925	88.5	W1MRA	Network Hub 1	
33cm	Boston *	927.0625	D244	K1RJZ	PTL	PTL
	Marlborough *	927.700		W1MRA	PTL	PTL
PL out = 131.8						
Marlborough		144.390	none	W1MRA	APRS Digipeater	
???		145.630	146.2	W1MRA	Fox Box	
*Internet	HUB1- 449.925: IRLP node 4133 / Echolink node 4133 Connected to Echolink NEWENG2 conference (9127) for TIAOS net.					
	HUB2 - 442.700: IRLP node 4136 / Echolink node 4136 Connected to 220 Reflector 9124 on Tuesdays					
	927.0625: IRLP 4977		Normally linked to the NE900 Reflec- tor, 9125. Linked to MMRA via “NEW- ENG2” node 9127 for the TIAOS net.			
	927.700: IRLP 4978					

Notes: FTL = Full Time Linked (or default state) PTL = Part Time Linked (on schedule or demand)
Note — a repeater can be linked to only one Hub at a time.

President's Corner ~ David Hornbaker, N1DCH

HamXposition: I would like to thank those that stopped by the MMRA room. It was great seeing you in person! We had four new members sign up, five new hams get free memberships, and nineteen renewals. During the morning VE session, the MMRA VE team administered tests to twenty people resulting in three new Technicians, five new General class, and three new Extra class hams. In addition, the MMRA VE team assisted with the "1-Day Tech"™ session at which six people earned their Technician licenses.

A special thanks to those who participated in the MMRA raffle.

In person: Everyone is invited to attend in person September's membership meeting at New England Sci-Tech in Natick, [Directions](#). Meetings are a great place to meet and greet your fellow hams and to welcome our new members. Bring a friend, you do not have to be a member to attend.

Via Zoom: All MMRA meetings are also available via Zoom. The Zoom code is available to members on <http://www.mmra.org>. If you need assistance getting connected contact us at contact@mmra.org. If you are not a member, you can request the meeting code via email at contact@mmra.org.

Guest Speaker Leandra MacLennan - AF1R: Leandra will be discussing digital modes other than FT8, modes that allow actual conversation using your keyboard.

VE Exams: The September VE Session will be held on Saturday, September 17 at 9:00 AM, at Marlborough Central Fire Station, 215 Maple St (RT 85), Marlborough, MA, [Directions](#). Walk-ins are welcome. Please remember to bring a State ID, your FRN, and if upgrading, an Official copy of your current license. For more information, contact Ron – WO1E at ve@mmra.org or wo1e@mmra.org.

Membership renewal: All MMRA memberships expired on August 31. Please check your profile and if your membership expired in 2022, please renew. Renewals may be done on the website, or you can mail your renewal to Minuteman Repeater Association, PO Box 669, Stow, MA 01775-0669. Please allow seven days for us to process your renewal. Please allow fourteen days

for renewals that are mailed. While you're on the website (<https://www.mmra.org>) checking your expiration date, please verify your email address.

Annual Meeting Election Results

- **President:** David Hornbaker – N1DCH
- **Vice President:** John Spencer – WA1MDD
 - **Secretary:** Jason Peardon – W1HFP
 - **Treasure:** Kevin Paetzoid – K1KWP
 - **Clerk:** Stephen M Babbitt – KC1LPZ
- **Director, 2022-2024:** Rob Evans – N1BE
- **Director, 2022-2024:** James Lee – N1DDK

Tuesday Net: Join us Tuesday nights at 8:00 PM for our weekly Technical Information and Other Stuff (TlaOS) net. There will be a lively discussion on all sorts of HAM issues, including equipment, antennas, software, repeaters, and other stuff. The main purpose is to test our ability to link up the repeaters in case of an

President's Corner ~ David Hornbaker, N1DCH

emergency or, to support an event like the Boston Marathon. You can also join via EchoLink if your radio is a little under the weather. See below for more information.

You can find out more information about how and when the repeaters are linked on the website (https://www.mmra.org/repeaters/repeater_linking.html).

Please remember to keep your profile up to date, especially if your email changes. Note that if your callsign changes, send email to contact@mmra.org and we will update your callsign in the database.

73, Dave – N1DCH

VE Team Update ~ Ron Rothman, WO1E

After a restful summer, the MMRA VE team got into action once again at the Northeast HamXposition on August 27th 2022. Those VE's who participated were Ron Rothman - WO1E VE Liaison, Ed Moore – WE1I, Paul Hansen – N1IZ, Dave Hornbaker – N1DCH, Scott Anderson- NE1RD and Daniel McElenvy – AC1JL

We had a good turnout with twenty one candidates. Three earned a new Technician class license, five earned a General class license and three earned an Extra class license. Unfortunately, ten candidates did not earn an upgrade or new license.

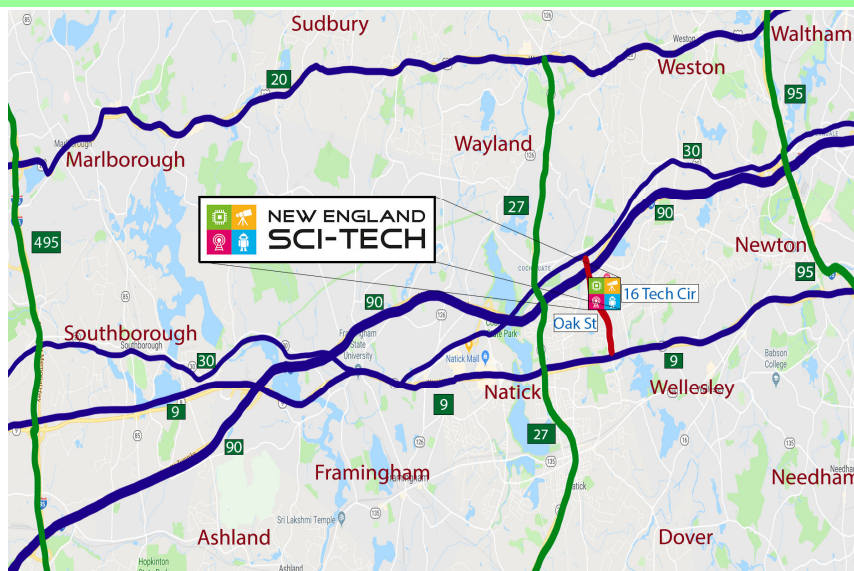
Our next session will be held at the Marlborough Central Fire Station on September 17th at 9:00 AM. We are always looking for new VE's. If you are interested, please call me and I will answer your questions and tell you how to get accredited with the ARRL VEC.

Directions to New England Sci-Tech Inc. 16 Tech Circle Natick MA 01760

From the north: take Rt 95 or Rt 27 or Rt 495 south to Route 30 toward Wayland. Once in Wayland, turn South on Oak Street and in 1/2 mile look for Tech Circle on your left. Follow Tech Circle to the end.

From the south: take Rt 95 or Rt 27 or Rt 495 north to Route 9 toward Natick. At the Wellesley-Natick line, turn North on Oak Street and in 1/2 mile look for Tech Circle on your right. Follow Tech Circle to the end.

From the east or west: follow either Rt 30 or Rt 9 toward Natick, turn onto Oak Street at a set of traffic lights, and in 1/2 mile look for Tech Circle. Follow Tech Circle to the end.



Northeast HamXposition



Larry, W1DYJ, and Dave, N1DCH, assembling the antenna.

W1HFP Photo

John, WA1MDD, Kevin, K1KWP, and Jason, W1HFP in the MMRA room.

W1DYJ Photo



ARRL CEO David Minster, NA2AA, giving the Keynote Address Saturday morning.

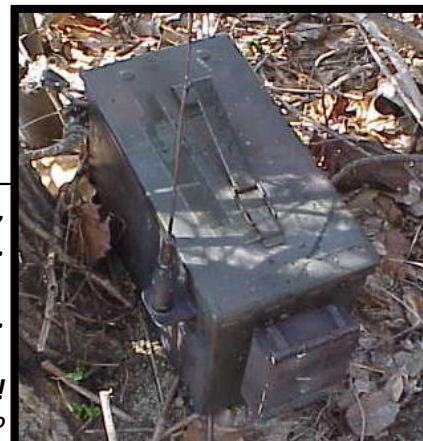
W1DYJ Photo

The MMRA FOXBOX was hidden Friday morning. It was found by K1JMC, KC1RRF, KC2TWF, KD2OWY, and W1SJ before I moved it Saturday at about 5PM.

It was found at the new location by W1SJ on Saturday a second time.

Congratulations to the hunters!

73, K1KWP



The Annual MMRA Raffle

First Prize: ICOM IC-2300H

Second Prize: YAESU FT-4XR

Third Prize: DIAMOND X-30A



Dave, N1DCH, presenting Max, W0MMX, the X-30A.

K5TEC Photo

18 May 2022 ANNUAL Membership Meeting ~ Minutes

Location: Marlborough Central Fire Station, Marlborough / Hybrid Zoom Teleconference

Dave, N1DCH, President, called the meeting to order at 7:28 pm local. There were 14 present at the firehouse and 18 on Zoom, **for a total of 32.**

Introductions were made by all present.

Special Presentation

A presentation of a plaque to N1NVK, Clark Conti, was made. Clark, who has moved to Arizona, was a long time member, officer, and general good guy, who was involved in all parts of the MMRA. We all thank him for his great service over many years.



Annual Elections

The following members are on the slate unopposed to fill these positions:

- Officer Elections (1 Year Term)
 - President: David Hornbaker – N1DCH
 - Vice President: John Spencer – WA1MDD
 - Secretary: Jason Peardon – W1HFP
 - Treasure: Kevin Paetzoid – K1KWP
- Directors (2 Year Term)
 - Rob Evans – N1BE
 - James Lee – N1DDK

These positions were accepted unanimously by those present.

The following two members are running for the position of Clerk:

- Stephen M Babbitt – KC1LPZ
- Howard Shepegel – AC1MN

President Dave, N1DCH, asked for a statement for each.

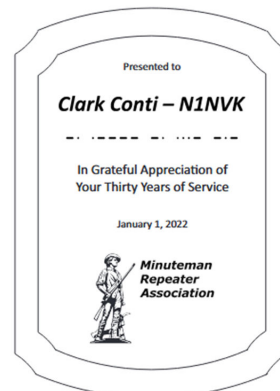
Howard spoke first, detailed a bit of his background, and then said he was voting for Steven.

Stephen spoke next and spoke to his background

President Dave mentioned that we had not had a contested election in many years, and was not sure how to best move forward

AE1EI, Kevin, moved to elect Stephen by acclamation. This was seconded and approved.

President Dave then appointed Howard as "Associate Clerk" with the concept that Stephen and Howard would collaborate to ensure that all meetings were covered.



Approvals

More details about these expenditures can be found in the minutes of the April Business Meeting which was published in the May MMRA Newsletter

- Approve \$3000 to replace Weston 2m – 146.79: this is to purchase a new Kenwood Repeater and Henry Amplifier, our standard 2m repeater configuration
- Approve \$2000 to replace our old service monitor – our old monitor has essentially died
- Approve \$3000 the FY 2023 emergency fund – these funds can only be used for emergency repair/replacement of existing equipment

These three recommendations of the Board of Directors were individually approved by the members present unanimously.

18 May 2022 ANNUAL Membership Meeting—continued

VE Session

The MMRA's next VE session is Saturday May 21st 9:00 AM at City Church Marlborough, 72 Jefferson St 2nd floor (the Shoebox building, across from Kelleher Field), Marlborough, MA

Contact Ron (WO1E@mmra.org) for more information

Please tell your friends, who are interested in taking tests, that they must have photo IDs and FRNs

A copy of your license required if upgrading (or Proof from ARRL, or QRZ website)

Note: Social Security numbers are no longer accepted by the FCC Everyone must have an FRN

Upcoming Meetings

- June 15 7:30 PM – Business Meeting -- New England Sci-Tech & Zoom Teleconference
- July – No Meeting
- August 28 Noon – HamXposition – Introduction to MMRA and Raffle Drawing
HamXposition, Best Western Royal Plaza Hotel, Marlborough
- September 21 7:30 PM – Membership Meeting
Keyboard Digital – Leandra MacLennan – AF1R
- Every Tuesday Night at 8:00 PM local – the MMRA Technical Information and Other Stuff Net

The Main Event: Dr. Phil Erickson – W1PJE

Amateur Radio's Emerging Role in Investigating Space Weather Near Earth

Detailed information about Phil's talk and his background are in the May Newsletter

Some slides from Phil's talk follow these minutes.



The MMRA Foxbox


Following Phil's excellent talk, Rob Evans, N1BE, demonstrated our Foxbox and gave a short talk about its history and use. The Board will be discussing how to go forward with the Foxbox during the next business meeting.

The meeting was adjourned at 9:28 PM local.

Submitted by W1DYJ



Slides from Dr. Phil Erickson, W1PJE's, talk (A few of Phil's 88 slides)



Engineer

Amateur Radio's Emerging Role in Investigating Space Weather Within Near-Earth space

P. J. Erickson W1PJE
MIT Haystack Observatory
Westford, MA USA
pje@haystack.mit.edu

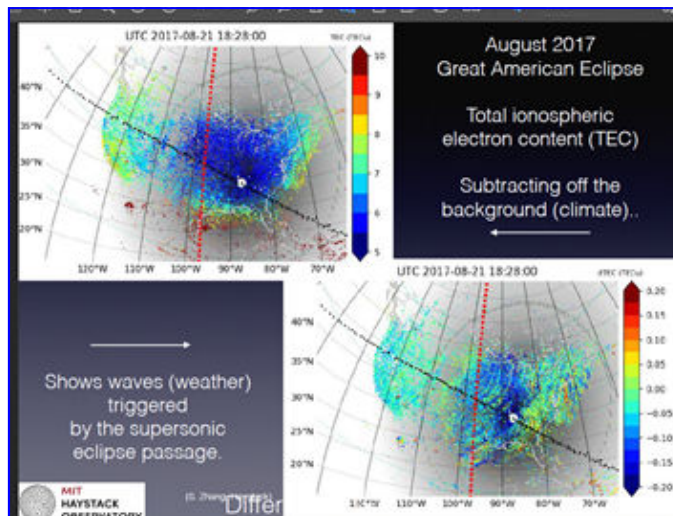
MMRA
May 18, 2022

Thanks to many, many people

MIT HAYSTACK OBSERVATORY

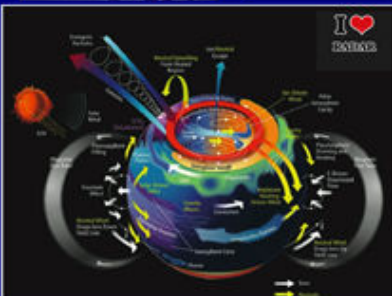
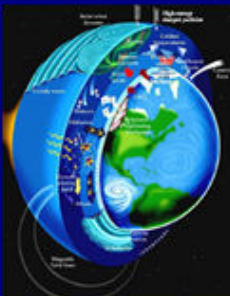
Dr. Phil Erickson – W1PJE

- Dr. Philip J. Erickson, W1PJE, holds a Ph.D. from Cornell University in space physics.
- He is head of the Atmospheric and Geospace Sciences group, a Principal Research Scientist, and an associate director at Haystack Observatory, a multidisciplinary radio observatory operated by Massachusetts Institute of Technology (MIT).
- Dr. Erickson is a member of ARRL, RSGB, and TAPR, and vice president of the Nashoba Valley Amateur Radio Club.
- He is a steering committee member for HamSCI and is a member of the National Academy of Science, Engineering, and Medicine's Committee on Radio Frequencies, which advocates on scientific radio frequency requirements and interference protection for scientific and engineering research.



Upper Atmosphere and Geospace Science


Plasma Environment Structure and Dynamics
Plasma Waves and Instabilities
System Response to Energetic Events
Coupling to the Neutral Atmosphere
Effects on Radio Propagation
Space Weather

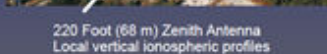
Millstone Hill Antennas

Millstone 150 Foot (46 m) Steerable Antenna


Wide field of view: 4.2 deg elevation and up (°)
1.2 deg FWHM beam size
11 to 15 km cross-beam for 400 - 550 km altitude
Slow antenna: 1.2 deg/sec az, 0.8 deg/sec el
Fully ephemeris / TLE tracking capable
(*) some restrictions apply



220 Foot (68 m) Zenith Antenna
Local vertical ionospheric profiles



MISA



SRI Design 1960
Moved to Haystack 1978

Slides from Dr. Phil Erickson, W1PJE's, talk ~ continued

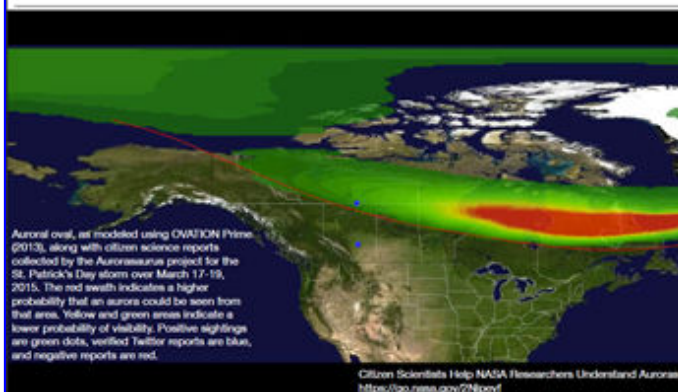
UHF Klystrons

High power
microwave amplifier
(2 MW peak;
150 kW average)

USAF surplus
from Ballistic Missile
Early Warning System
(BMEWS) Radars



Auroral Location Crowd-Sourcing

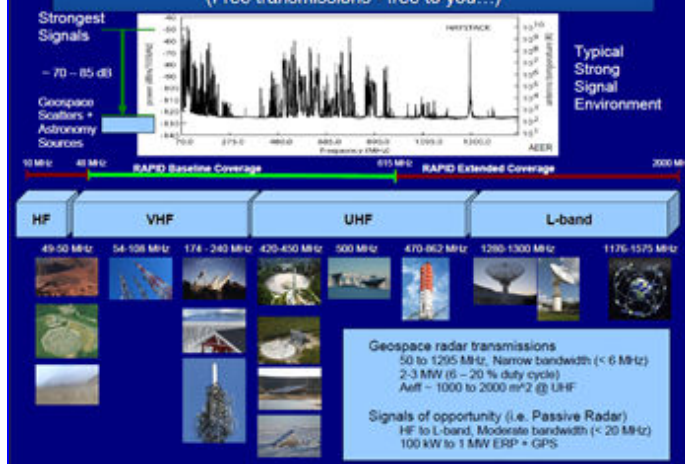


HamSCI NJIT 23 February 2018

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Signals We Can Use for Geospace Research (Free transmissions - free to you...)



Ham radio Science Citizen Investigation

HamSCI



hamsci.org/dayton2017



Founder and HamSCI Organizer
Dr. Nathaniel A. Frissell, W2NAF
The University of Scranton

A collective that allows university researchers to collaborate with the amateur radio community in scientific investigations.

Objectives:

1. Advance scientific research and understanding through amateur radio activities.
2. Encourage the development of new technologies to support this research.
3. Provide educational opportunities for the amateur radio community and the general public.

HamSCI
<http://hamsci.org>

nathaniel.frissell@scranton.edu

Personal Space Weather Station

Software Defined Radio
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz

Computer
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz

Magnetometer Module
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz

VLF RX
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz

VLF TX
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz
- 100 kHz - 10 MHz

HamSCI
<http://hamsci.org>

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HamSCI Activities

- Google Group (Over 450 Members)
 - Weekly Telecons
 - Participation in
 - Professional Science Meetings
 - Amateur Radio Conventions
 - Annual HamSCI Workshop
 - Close collaboration with TAPR (tapr.org)
- Join at <https://hamsci.org/get-involved>

HamSCI
<http://hamsci.org>

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"You should have been there..."

And here it is: <https://drive.google.com/file/d/1Wr6MEemPAZLK46V6sVvfKGmlb9Nkgw0j/view?usp=sharing>

15 June Business Meeting ~ Minutes ~ via ZOOM

Called to order @ 7:31 PM

HamXposition

Larry – W1DYJ – States he needs HamXposition information by August 1st to allow time for it to be published in the August MMRA Newsletter.

The discussion involved what will be needed to make HamXposition successful. Dave – N1DCH – asked about the signage. Dave says Bob – K1IW – has the banners

Kevin – K1KWP – said the signage needs to increase traffic and questioned are we allowed to hang signs on the walls. Kevin will be in charge of the money. Also mentioned was breakfast and that he will pay for a box(s) of coffee and doughnut holes.

Howard – AC1MN – offered to volunteer for Friday night setup.

In Summary the discussion focused on the logistics of our location, signage and manpower, i.e. who is covering the MMRA Booth, who will have the keys to our room (one of the few rooms that locks), the raffle tickets, parking for dropping off equipment, the Fox Box. With these details not fully ironed out it was suggested having an early August Meeting either on the 1st or 2nd Wednesday, but it was finally decided to have our next business meeting on the 3rd Wednesday of July. During the interim we will be communicating by an exchange of emails with the July meeting set for finalizing these details.

Raffle Tickets: (information supplied from Jason and Dave)

This is from last year raffle signs:

7 tickets - \$10.00

3 Tickets - \$5.00

1 Ticket - \$2.00

A two year renewal will receive 2 raffle tickets (same as last year)

2022 Ticket Drawing Prizes:

1st Prize = Icom IC-2300H (at HRO \$199.95)

2nd Prize = Yaesu FT-4XR (at HRO \$99.95)

3rd Prize = Diamond X-30A (at HRO \$69.95)

Report on Repeaters:

Bob – K1IW – who was not able to attend provided a slide Summary.

Temporary DR1X running in Weston

New Weston Repeater components on Order and expected end of June

New Billerica Antenna has arrived – install date expected in mid to late July

No output tone on North Reading

Mendon internet box flaked out May 31st has been replaced

All other systems running smoothly

Added by Dave – K1DCH - concerns 6 meter tone running intermittently. Kevin concurs that is a long time issue. Tuesday 6/15, issue: TiOS 6/12, .27 not properly linked? (Kevin: long time intermittent issue)

Attendees: 12

K1KMP Kevin

N1DCH Dave

W1HFP Jason

W1DYJ Larry

N1BE Rob E

KC1LPZ Stephen

W1DM Don

AC1MN Howard

AE1EI Kevin

K9ZBE Steve

W2JIG Tim

KB1OQA Tom

Meeting adjourned: 8:33 PM.

Submitted by: Stephen M Babbitt, Clerk – KC1LPZ

20 July Business Meeting ~ Minutes ~ via ZOOM

Called to order @ 7:10 PM

Repeater & Tech Update:

Referring to last month's slide from Bob – K1IW – the equipment and parts ordered for the Weston Repeater have not arrived yet. Estimate is for a September delivery. As stated last month, the Antenna for the Billerica Repeater has been received with installation probably in late August or September. Volunteer(s) will be needed to climb the tower safely. There is still no output tone on North Reading and 6 meters is still intermittent

On the matter concerning the Pru Bob summarized what was stated in the emails that the Diamond X30 must be replaced. It is only a 3db gain and should be replaced with a dual band. We will define it as one unit connected by one cable. This will likely be for October. Many replacement commercial antennas have been discontinued so a cost estimate cannot be specific. Bob's guess is around \$800 and with shipping suggests we "not to exceed \$1,000".

Dave – N1DCH – made this into a motion and was seconded. This will be sent to the Membership electronically for a vote not exceeding \$1,000.00.

HamXposition

- o Larry – W1DYJ – asked about the signs for W1A, the YCCC station, so we might piggy-back on it.
 - o Bob – K1IW – has the W1A sign and will send a "vector graph" of it to Larry.
- o Dave – N1DCH – will provide Mast, 50' of Coax and repair material, if needed, on the coax. Larry - W1DYJ - will bring the Radio and Antenna for the talk-in station.
- o Kevin – K1KWP – will set up the repeater links Saturday morning on 147.270, 449.925 and 223.940.
- o Larry – W1DYJ – provided a spreadsheet slide for the MMRA HamXposition Project Plan which he can provide to anyone as needed.
- o Stephen – KC1LPZ – referring to last month's meeting minutes asked about the Keys. Dave will have one and prefers having two for our room, which should be provided by the Hotel.
- o We need two laptops: one for the Membership database and the second one for our presentation if K1KWP's old TV does not work.
 - o John – WA1MDD – has a laptop he can provide.
- o We will have the Presentation Room for 50 minutes. Kevin – K1KWP – will be doing the Presentation (about 20-30 minutes, 10 minutes for the raffle and Fox Box results about 5 minutes and any other questions or miscellaneous matters.
- o Larry - W1DYJ – will be doing a 4 page newsletter for HamXposition. There will be a President's Corner, List of Repeaters and Officers and other relevant material on this event.
- o Kevin will take charge of MMRA involvement in this event, particularly expenditures like Coffee. Note too with things opening up participants should be able to get food and drink without MMRA paying for it.
- o Stephen – KC1LPZ – referring to the emails brought up the subject of the MMRA Logo(s).
- o Dave – N1DCH – stated we will be using the gold logo, but any of our past logos are fine so this is a non-issue.
- o Larry – W1DYJ – used the HamXposition schedule slide as initially it was asked how early must we be at our booth. The ARRL Keynote Speaker is scheduled for 9 AM Saturday so a 9 AM start is fine and can set up our room starting at 8 AM.

Meeting Attendees:

John Spencer, Dave Hornbaker, Kevin Paetzoid, Larry Banks, Bob DeMattia, Stephen Babbitt, Roger Coulson, Howard Shpegel, Mike Rioux.

This Meeting was Adjourned at 8:12 PM.

Respectfully Submitted by: Stephen M Babbitt - KC1LPZ - Clerk

BE A PART OF IT!

Amateur Radio Exhibit @ The Big E – N1E
West Springfield, Massachusetts
September 16 – October 2 2022

"Project Big E" is looking for radio club members and individuals throughout New England to staff a large amateur radio display. You'll help explain amateur radio to thousands of people during the 16-day event.

In the past, 1.5 million people have attended The Big E—billed as the fifth largest fair in the nation! The interested public from across New England will be directed to clubs in their respective hometowns for classes, mentoring, etc.

Planning is underway for this exciting ham radio project. Please promote Project Big E to your radio clubs and club members.



Conn. Building at the BIG E

- Live ARISS space station contact
- Emergency communications display
- SSB, CW, DMR, other digital mobile modes
- Highlight youth involvement
- Showcase today's modern amateur radio activities: Parks/Summits On The Air, QRP, kit building and more!



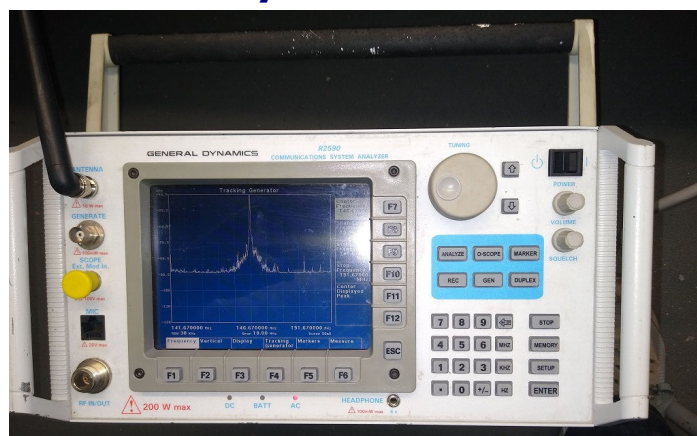
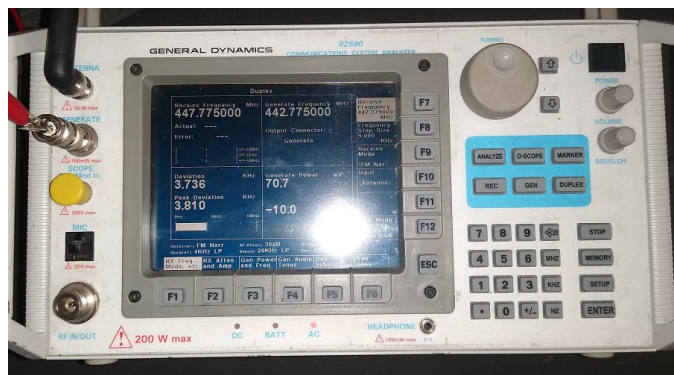
Go to <https://groups.io/g/ProjectBigE> or scan the QR code for more information and to get involved.



<https://groups.io/g/ProjectBigE>

New Communications Analyzer

During the May Annual Meeting we approved an expenditure of up to \$2000 to replace our very old analyzer box. Our "new" one has arrived.



Here it is doing something our old one could not do: it is transmitting on a repeater input while we monitor the repeater output.

Upcoming MMRA Meetings

Note: Meeting locations and times are subject to change.

Consult the MMRA website for the most up-to-date information. ZOOM

Teleconference login info is available

once you log into your account on MMRA.ORG

Non-members: if you wish to attend, email contact@mmra.org.

Wednesday, 21 September – Membership Meeting ~ 7:30

Location: New England Sci-Tech + Zoom Teleconference

Topic: Keyboard Digital — Leandra MacLennan, AF1R

Wednesday, 19 October – Business Meeting ~ 7:30

Location: New England Sci-Tech + Zoom Teleconference

Wednesday, 16 November – Membership Meeting ~ 7:30

Location: New England Sci-Tech + Zoom Teleconference

Topic: 10M Moxon Antenna — John Portune, W6NBC

Wednesday, 21 December – Business Meeting ~ 7:30

Location: New England Sci-Tech + Zoom Teleconference

Wednesday, 18 January – Membership Meeting ~ 7:30

Location: TBD + Zoom Teleconference

Topic: The “new” FCC RF Exposure Rules— Larry Banks, W1DYJ

Wednesday, 15 February – Business Meeting ~ 7:30

Location: TBD + Zoom Teleconference

Wednesday, 15 March – Membership Meeting ~ 7:30

Location: TBD + Zoom Teleconference

Topic: TBD

Wednesday, 19 April – Business Meeting ~ 7:30

Location: TBD + Zoom Teleconference

Wednesday, 17 May – ANNUAL Membership Meeting ~ 7:30

Location: TBD + Zoom Teleconference

Topic: Elections + TBD

Don't Forget! Join Us.

Every Tuesday @ 8 PM

Technical, Informational and Other Stuff Net

The MMRA's repeaters are linked Tuesday nights for the TIOS Net. Keep up with what's happening in the MMRA and ask your ham related questions.

Net Control Operators:

Week 1	W1DYJ	Larry Banks
Week 2	KB1OQA	Tom Turner
Week 3	KC1CLA	Ed Curley
Week 4	K1KWP	Kevin Paetzold
Week 5	K1BTZ	Jonathan Traum

To connect using Echolink / IRLP during the Net:

- Echolink Conference *NEW-ENG2*
- IRLP node 4133

NOTE: we need another NC to be available as a substitute. If you are interested, email W1DYJ@mmra.org

MMRA Leaders

Executive Board — Officers

President	Dave Hornbaker	N1DCH
Vice President	John Spencer	WA1MDD
Secretary	Jason Peardon	W1HFP
Treasurer	Kevin Paetzold	K1KWP
Clerk	Stephen Babbitt	KC1LPZ

Executive Board — Directors

Director »2023	Bob DeMattia	K1IW
Director »2023	Roger Coulson	WA1NVC
Director »2024	Rob Evans	N1BE
Director »2024	James Lee	N1DDK

Technical Officer

Technical Officer	Bob DeMattia	K1IW
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President Emeritus

Bob DeMattia	K1IW
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Technical Officer Emeritus

Bryan Cerqua	W1BRI
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Repeater Trustees

Belmont 145.43	Ed Curley	KC1CLA*
Billerica 147.12	Mike Rioux	W1USN*
Boston 146.82	John Mullaney	K1BOS*
Boston 927.0625	Rick Zach	K1RJZ*
Brookline 145.16	Joyce DeMattia	K1MRA*
Brookline Rcv 146.82	Bob Phinney	K5TEC*
Burlington 224.88	Bruce Pigott	KC1US*
Hopkinton 449.575	Bryan Cerqua	W1BRI*
Marlborough 53.81	Bryan Cerqua	W1BRI*
Marlborough: 29.68, 144.39, 147.27, 223.94, 448.225, 449.925, 927.70 Lowell 442.25		
all as W1MRA	Bill Northup	N1QPR*
Mendon 146.61	Kevin Paetzold	K1KWP*
N. Reading 146.715	Bruce Pigott	KC1US*
N. Reading 446.775	Larry Banks	W1DYJ*
Quincy 224.40	Bill Dunn	N1KUG*
Quincy 146.67	Bryan Cerqua	W1BRI*
Weston 146.79	Rob Evans	N1BE*
Weston 224.70	Eddie Mulhern	N1NOM*
Weston 442.70	Dave Hornbaker	N1DCH*

Additional, non-Voting

Newsletter Editor	Larry Banks	W1DYJ*
Emerg. Coord.	Kevin Paetzold	K1KWP*
Pub. Serv. Coord.	Bruce Pigott	KC1US*
VEC Liaison	Ron Rothman	WO1E*
Net Manager	Larry Banks	W1DYJ*
Web Page Editor	Bob DeMattia	K1IW*
Social Media Coord.	Steve Umans	K8ZBE*

* Appointed

Contacting the MMRA



Members: mmra@groups.io

Note: This may take some time.

You must be approved by the moderator.

Officers: contact@mmra.org

Control Ops: control-ops@mmra.org



<http://www.mmra.org/>



<https://www.facebook.com/mmraham>

MMRA VE SESSIONS

Check out <https://www.mmra.org/exam.html> or email ve@mmra.org

Ask your friends to become a member Just let them know that it is not fully automated. Although they can log into the MMRA website immediately, they need to be manually processed. This could take up to a week.

If you haven't updated your MMRA profile in a while,
now is the time!

Go to < [MMRA.ORG](http://www.mmra.org) > and log in to do so.

Previous issues of the MMRA Newsletter are available
at: www.mmra.org > [Newsletter Archive](#) (on the left)

Heavy Hitters Traffic Net

This net is active on our repeaters Sunday to Friday evenings from 10—11 PM. Active repeaters are:

2m: Mendon (146.61), Quincy (146.67), North Reading (146.715), Boston (146.82), and Marlborough (147.27)

220: Marlborough (223.94), Quincy (224.40), Weston (224.70), and Burlington (224.88),

440: Lowell (442.25), North Reading (446.775), Hopkinton (449.575), and Marlborough (449.925)



NEW ENGLAND SCI-TECH

New England Sci-Tech Inc is a new 501(c)(3) STEM education center, amateur radio training center, and maker space located at 16 Tech Circle, Natick. It is home to New England Amateur Radio Inc (NE1AR) and the youth radio club Sci-Tech Amateur Radio Society (STARS). NE Sci-Tech welcomes memberships and donations via www.NESciTech.org or www.NE1AR.org.

Get connected on the MMRA Repeater System ~ Dave Hornbaker N1DCH

What is the best way to get connected on the MMRA repeater system? Try announcing yourself! Just say your call sign followed by "listening". If you want, you can include the last 3 digits of the repeater frequency. For example, "N1DCH listening" or maybe "N1DCH listening on 925", you may very well get a response. Try to connect by announcing yourself several times.

Most of the time, Marlborough Hub1 (449.495) is linked to the following repeaters, Boston (146.820), North Reading (446.775), Mendon (146.610), Lowell (442.250), and Hopkinton (449.575). Remember that when the repeaters are linked, you need to wait two or three seconds after you key up and before you speak. This is especially important on the TlaOS net on Tuesday when most of the repeaters are linked.

You can also link (and delink) the repeaters yourself. See the information you received when you became a member, or check the [User Control Codes](#) once you log into the MMRA web.

Try one of the non-linked repeaters too. There are Hams monitoring them as well. For more information on the repeater network and how it is linked at various times, check out https://mmra.org/repeaters/repeater_linking.html.